

**REMARKS**

Applicant has studied the Office Action of October 15, 2001 ("Office Action") and made amendments to the claims. It is respectfully submitted that the application, as amended, is in condition for allowance. Claims 1-24 are pending in the present application. Claims 1,4, 7, 14, 18 and 22-23 have been amended and claims 2, 3, 5, 6, 8-11, 16, 17, and 19-21 have been canceled without prejudice or disclaimer. New claims 25-37 have been added. Reconsideration and allowance of the claims in view of the above amendments and the ensuing remarks are respectfully requested.

**EXAMINER OBJECTION: DEFECTIVE DECLARATION**

The Examiner stated that the oath or declaration is defective because it has non-initialed and/or non-dated alterations. A new declaration is submitted herewith.

**EXAMINER OBJECTION: DRAWINGS**

The Examiner objected to the drawings. New drawings correcting the deficiencies noted on PTO-948 are enclosed with this Response to Office Action.

**EXAMINER OBJECTION: ABSTRACT**

The Examiner objected to the abstract of the disclosure because it fails to point out any detail in the technical features that render it new in the art. The abstract has been amended as set forth in the foregoing section to fully comply with the requirements of MPEP §608.01(b). Applicant respectfully requests that the Examiner withdraw the objection to the abstract.

**CLAIM REJECTION: §112, ¶2**

The Examiner rejected claim 4 under 35 U.S.C. §112, ¶2 as a dependent claim dependent upon itself. Applicant has amended claim 4 and believes that the amended claim is now in condition for allowance.

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**CLAIM REJECTION: §102(b)**

The Examiner rejected claims 1-4, 6 and 8-19 under 35 U.S.C. §102(b) as being anticipated by Fellbaum ("WordNet: An Electronic Lexical Database").

In response to Examiner's rejection under 35 U.S.C. §102(b), claims 1, 4, 14 and 18 have been amended to more specifically define that which Applicant regards as its invention. Independent claims 1 and 18 have been amended to more particularly distinguish the present invention from the prior art cited by the Examiner. Specifically, in contrast to Fellbaum, the present invention describes a rule-based protocol in which an explicit numerical relationship is dynamically assigned and modified at each step along a semantic path according to the relationship followed between concepts in a semantic space. This protocol enables the present invention to more particularly define and understand the relationship between concepts and their ultimate relationship to the search query. Fellbaum does not rely on an explicit numerical relationship between concepts (as opposed to between words as described in Fellbaum) and does not offer any type of dynamic numerical relationship that continuously allows the relationship between concepts in a semantic space to be calculated according to the type of relationships followed, the directionality of the relationships and changes in direction along the semantic path, and the number of competing relationships to the one followed at a particular step along the semantic path.

Moreover, claim 18, as amended, now specifically claims the use of a meaning differentiator for the input query and a second meaning differentiator for each target data element, where each meaning differentiator represents a set of concepts that together specify a location in the semantic space defined by the lexicon. That is, through the use of an interpretation phase, the protocol of the present invention analyzes data within a semantic space to determine the semantic distance between the meaning differentiator for the input query and the meaning differentiator for each target data element in the semantic space when presenting search results in response to a query. In contrast, Fellbaum teaches only the notion of determining the semantic distance between single concepts, rather than the semantic distance between sets of concepts, where each set of concepts defines a location in semantic space. Fellbaum describes the *exact opposite* of the present invention because Fellbaum teaches adding related terms by

“expanding” their meaning at the “word” level. There is no provision in Fellbaum of using a meaning differentiator to represent the refined, context-specific, linguistic meaning of search terms to provide an improved search result based on mathematical distance calculation as taught by the present invention. In other words, Fellbaum simply expands the concepts and then “lumps” the results together rather than refining the search to a specific location in semantic space that is defined by an intersection and/or union of concepts, and then assigning a dynamic numerical indicator to the result based on the semantic distance from that location.

Applicant respectfully submits that claims 1, 4, 14 and 18, as amended, are allowable. Additionally, because claims 1 and 18 are allowable, the applicant respectfully submits that claims 4 and 12-15 should be allowable as well as they depend, either directly or indirectly, on claims 1 and 18.

**CLAIM REJECTION: SECTION 102(e)**

The Examiner rejected claims 20, 21 and 23 under 35 U.S.C. §102(e) as being anticipated by Deerwester et al. (U.S. Patent No. 4,839,853). Claims 20 and 21 have been cancelled without prejudice or disclaimer. Applicant respectfully submits that claim 23, which depends directly from independent claim 18 and incorporates all of the subject matter therein, is allowable for at least the same reasons as set forth above with respect to claim 18.

**JOINT INVENTORS**

In accordance with its obligation under 37 CFR 1.56, applicant confirms that the subject matter of all claims was commonly owned at the time of the invention disclosed and claimed in the pending patent application.

**CLAIM REJECTION: §103(a)**

The Examiner rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over Fellbaum (“WordNet: An Electronic Lexical Database”) as applied to claims 1-4, 6 and 8-19, and further in view of Wical (U.S. Patent No. 6,038,560).

Applicant respectfully submits that claims 7, as amended, is not rendered obvious in view of the cited prior art. Claim 7 depends directly from claim 1 and is allowable for at least the

same reasons as set forth above. That is, Fellbaum in view of Wical does not teach or suggest any type of dynamic numerical relationship that continuously allows the relationship between concepts in a semantic space to be calculated according to the type of relationships followed, the directionality of the relationships and changes in direction along the semantic path, and the number of competing relationships to the one followed at a particular step along the semantic path.

The Examiner rejected claims 22 and 24 under 35 U.S.C. §103(a) as being unpatentable over Deerwester et al. (U.S. Patent No. 4,839,853) as applied to claims 20, 21 and 23, and further in view of Wical (U.S. Patent No. 6,038,560). Claims 22 and 24 depend, either directly or indirectly, from claim 18 and are allowable for at least the same reasons as set forth above. That is, in addition to the reasons set forth with respect to claim 7, Fellbaum in view of Deerwester and Wical does not teach or suggest the use of an interpretation phase such as that used in the protocol of the present invention to analyze data within a semantic space to determine the semantic distance between the meaning differentiator for the input query and the meaning differentiator for each target data element in the semantic space when presenting search results in response to a query.

Consequently, Applicant respectfully submits that claims 7, 22 and 24, as amended, are allowable.



**CONCLUSION**

In view of the foregoing, it is respectfully submitted that all claims of the present application are in condition for allowance. Entry of the amendment, and reexamination and reconsideration of the application, as amended, are respectfully requested, as is allowance of all claims at an early date.

Applicant's attorney respectfully requests an interview with the Examiner handling the present patent application in the event that this case is not now considered to be entirely in condition for allowance.

If it should be determined, for any reason, that an insufficient fee has been paid, please charge any insufficiency to ensure consideration and allowance of this amendment to the present application to Deposit Account No. 03-3975.

Respectfully submitted,

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